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**DOCUMENT-IDENTIFIER:** US 6076067 A  
**TITLE:** System and method for incorporating origination and destination effects into a vehicle assignment process

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**Detailed Description Text - DETX (22):**

Because the two O&D FAM solutions define the convex space denoted by the shaded area in FIG. 5, the optimal capacity is at an extreme point between the two solutions. As the solution space is convex, any combination of two or more feasible solutions to O&D FAM serves as a feasible solution to the assignment model. Hence, vehicle count, balance and cover constraints are satisfied implicitly and do not need to be included in the convex combination formulation. The mathematical formulation needed to determine convex combination solutions is simpler than the original prior FAM formulation. Mathematically, the convex combination model is defined by: ##EQU5##

**Current US Original Classification - CCOR (1):**

705/7

**Current US Cross Reference Classification - CCXR (1):**

705/35

**Current US Cross Reference Classification - CCXR (2):**

705/8



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**United States Patent** [19]

Jacobs et al.

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[54] **SYSTEM AND METHOD FOR  
INCORPORATING ORIGATION AND  
DESTINATION EFFECTS INTO A VEHICLE  
ASSIGNMENT PROCESS**

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[51] **Int. Cl.<sup>7</sup>** ..... G06F 17/60

[52] **U.S. Cl.** ..... 705/7; 705/8; 705/35

[58] **Field of Search** ..... 705/7, 8, 1, 35

[56] **References Cited**

**PUBLICATIONS**

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[57] **ABSTRACT**

A comprehensive system and methodology for incorporating origination and destination network effects into a transportation industry's vehicle assignment process. The invention utilizes a decomposition strategy to combine a simplified version of network segment-FAM with the network flow aspects of origination and destination yield management. The invention's decomposition of the problem allows for the nonlinear aspects of the targeted origination and destination market effects to be isolated in origination and destination yield management, and subsequently incorporated in the vehicle assignment model using linear approximations to the total revenue function. The system operates either in "standalone" mode, or communicably attached to remote and local databases attendant to equipment and scheduling.

**18 Claims, 11 Drawing Sheets**

**Microfiche Appendix Included**  
(1 Microfiche, 13 Pages)

**TEN CITY TRANSPORTATION  
NETWORK ILLUSTRATION**